

Note on Drawings of the Great Comet (b), 1882, made at the Observatory, Arcetri, Florence. By Wilhelm Tempel.

Continued ill-health and an almost uniformly cloudy sky greatly interfered with my observations of the comet of September, and I was able to make but few sketches of it.

The accompanying sheet of drawings was destined for the Royal Astronomical Society, but I have hesitated about sending it, as it is merely the work of my own hand, with the assistance of the telescopes of the Observatory here; and it would appear that of late much greater value is attached to photographic representations. I trust that the Society will kindly receive this work of mine, and not criticise it harshly.

As these sketches were made as faithfully as possible from nature, any explanation of them would be superfluous, for, as Father Secchi has well said, "Le figure dicono più che molte parole."

The drawing H, however, requires a short explanation, as it has no connection with the comet. It represents two fine threads of glass crossing the focus of an eyepiece. These threads are tubular, and present the appearance of two black lines separated by a single white one. In the figure H the two threads A and B differ in diameter, $A = \frac{3}{1000}$, $B = \frac{12}{1000}$ of an inch.

It is well known that most great comets show a dark line in the middle of the tail; this is seen most plainly in the axis of the tail near the head. The great comet of September also, in the beginning of October, clearly showed this dark line, and the second tail, pointing towards the Sun, had also the appearance of a tube—that is to say, the sides were bright and nebulous, while the axial line was dark.

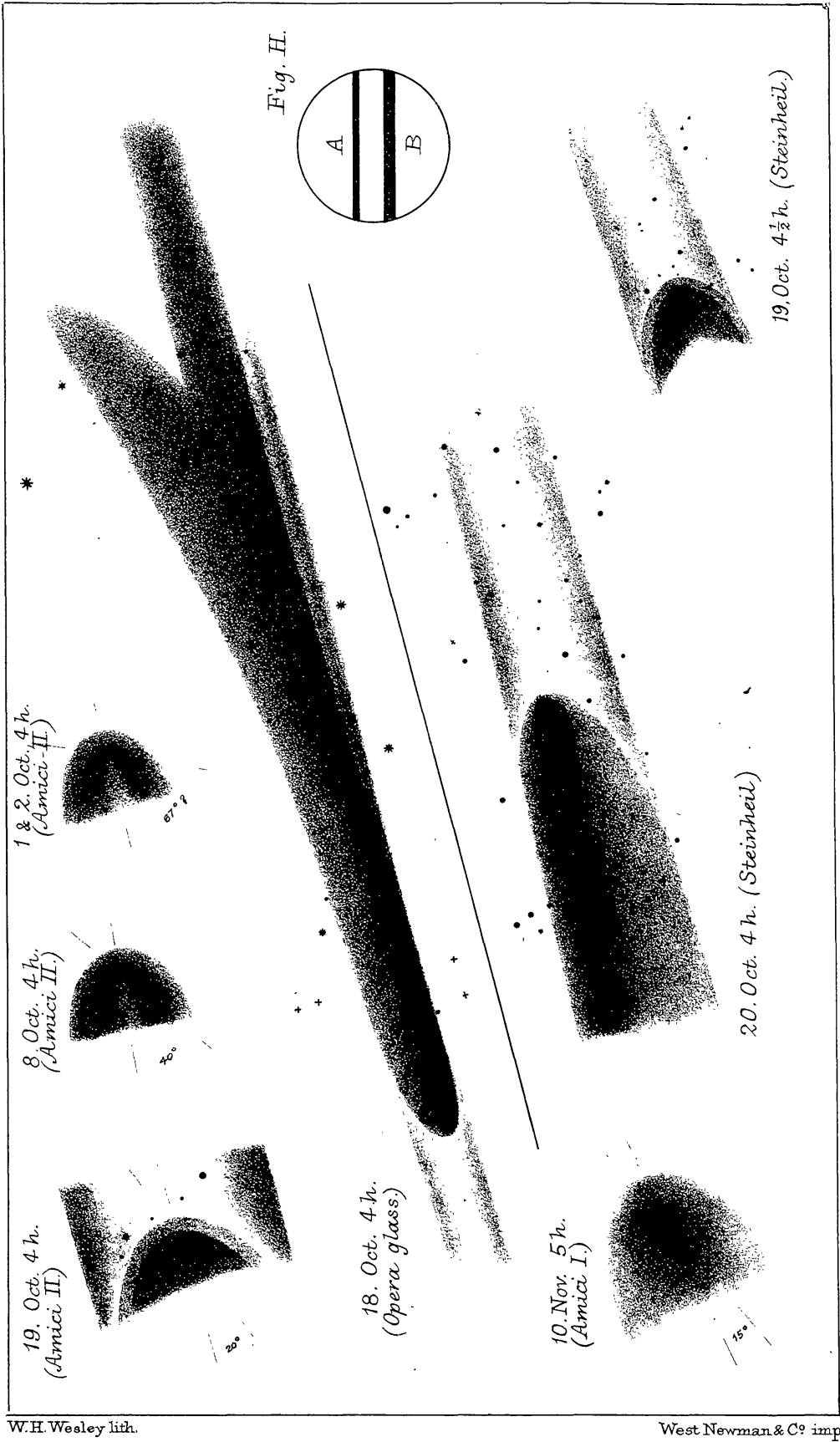
The appearance of the comet's tail presents an evident resemblance to these glass threads. Still, I offer no hypothesis, simply remarking that it is the duty of every observer to seek for familiar forms to compare with such as are difficult of comprehension.

The position-angle of the second nucleus of the comet with the axis of the tail, as given in the drawing, is only an estimation, not having been measured.

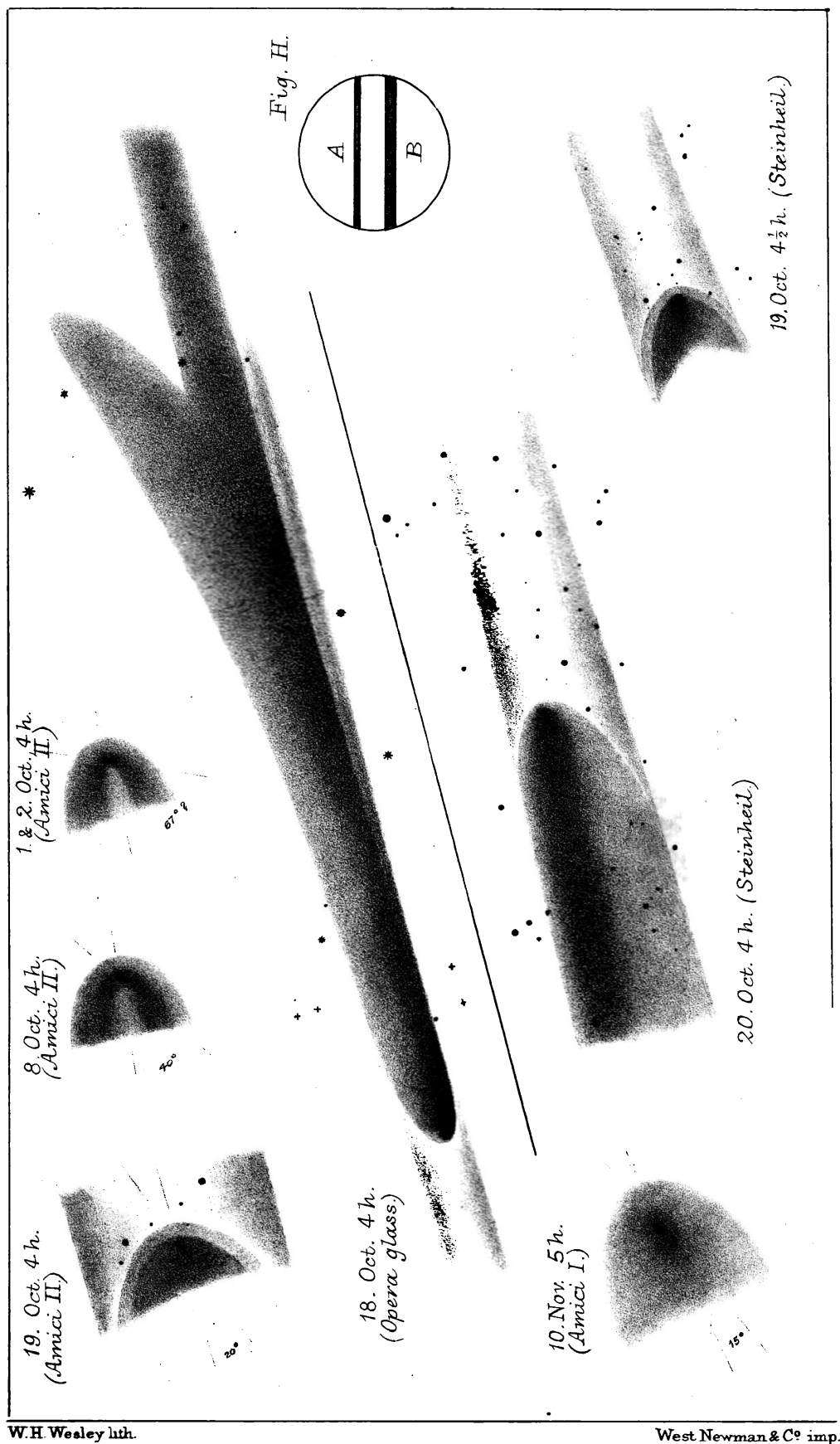
*Arcetri, Florence :
1882, December.*

Notes on the Great Comet (b) 1882. By E. E. Markwick.

I forward a condensed account of my observations of the Great Comet. I was only able to secure one observation of it before perihelion, and this was on September 14, at Durban. When first seen, about 5^h a.m., it was about 5° above the horizon, and it appeared ruddy, probably through haze. I looked at it



Drawings of the great Comet (b) 1882.
by Wilhelm Tempel.



Drawings of the great Comet (b) 1882.
by *Wilhelm Tempel*.

April 1883.

the Great Comet (b) 1882.

323

through a small achromatic of $1\frac{3}{4}$ -in. aperture, which showed the head of a woolly texture. The comet remained visible till nearly sunrise.

On September 18 I looked very carefully for it, but doubtless its proximity to the Sun prevented its being seen.

From the following date the observations were made at Pietermaritzburg with a $2\frac{3}{4}$ -in. achromatic, powers 45 to 140.

September 25, 16^h 30^m.—Saw the comet. It was a most magnificent object, with a superb tail many degrees in length. When first seen its head was below the horizon, and it presented an astonishing appearance, like a long white cloud on the horizon. It gradually rose and displayed itself as a lovely sight. The head was pointed, with a bright nucleus, the general tint a soft white. The tail lay nearly in the ecliptic, or parallel to it. The S. edge of the tail was sharply defined, the N. edge softened off. There was a dark streak or shading down the tail, rather towards the S. edge. In the telescope the nucleus was bright and star-like. Watched it till 17^h 30^m, when the nucleus and a little of the head were still visible.

September 30, 16^h 45^m.—Noted the tail as markedly curved. The comet was one of the most exquisite sights I have ever witnessed, seen in a very pure sky. The head was brilliant, and equal to a 1st magnitude star, but the light was more diffused than that of *Jupiter*. The glass did not reveal much, except that the nucleus was an elongated patch of light, the direction of its length not coinciding with the axis of the comet. The finest feature (only seen with the naked eye) was a delicate outlying border, looking like thin gauze or spray, which started back from the head and formed the borders of the tail for some way back. The effect of this was most beautiful.

October 1, between 16^h and 17^h.—Position of head estimated roughly at R.A. 10^h 46^m; S. Dec. 8°; breadth of tail at widest part, $1\frac{3}{4}$ °; length, 12 $\frac{1}{2}$ °. Many stars seen through the tail, and these shone quite brightly. There was still the pronounced dark streak in the tail, and further I fancied I could see traces of other streaks. The same delicate halo surrounded the head and sides of the comet proper. In the telescope, by quickly moving it backwards and forwards, this delicate light could be seen in advance of the nucleus.

October 4, 16^h.—Tail appears a little longer, although possibly not quite so bright. The streak was barely visible; some hazy light round the head. The nucleus appeared woolly in the telescope, and the hazy envelope could be seen $1\frac{1}{2}$ ° in advance of the nucleus. The tail, if produced, would pass almost centrally over a *Hydræ*. Position at 16^h 30^m: R.A. 10^h 38^m; S. Dec. 8° 48'; length of tail, 14°. This and the following positions were obtained by comparing comet with stars near its course, the *Uranometria Argentina* forming a most excellent and trustworthy guide, as it appears to represent the heavens with the utmost fidelity. South, preceding the comet's head, at this

E E

time were seen, about $1\frac{1}{2}^\circ$ distant, two wisps or pieces of nebulous-looking light. Whether they had anything to do with the comet I cannot say; but I can trace no nebula as being in this position, and moreover I have not been able since to recover them.

October 5, 15^h 30^m.—General features of comet unchanged. No streak was seen, and the end of the tail seemed rather ragged. Direction of tail towards α *Hydræ*. Position at 16^h: R.A. 10^h 32^m 53^s; S. Dec. 9° 24′.

October 9, 15^h 20^m.—S. edge sharp. The end of the tail and its N. edge very much softened off; in fact the S. edge seemed to project at the end into a sort of wisp. Position at 15^h 30^m: R.A. 10^h 27^m; S. Dec. 11° 14′. I noticed that a star near λ *Hydræ*, over which the tail passed, was invisible to the naked eye. Nucleus elongated and inclined at an angle to axis of comet. Faint halo round head seen, with naked eye, quite 1° in advance of nucleus.

October 10.—Comet well seen in a very clear sky from 15^h 40^m to 16^h 20^m. S. edge of tail just grazed λ *Hydræ*. Tail extended to beyond α *Hydræ*. Halo visible in advance of nucleus some 2°. Length of tail 18°, not including nebulosity in front of head. Position at 16^h: R.A. 10^h 21^m 24^s; S. Dec. 11° 22′.

October 11, 15^h 30^m.— λ *Hydræ* just within the tail, shining brightly—a very pretty sight. Comet white and silvery. One or two double stars in and near tail, a brilliant spectacle. Halo visible 2° in advance of nucleus; length of tail 17°. Position at 15^h 30^m: R.A. 10^h 24^m 27^s; S. Dec. 11° 45′.

October 15, 14^h 45^m.—Very clear sky. Saw a bright red meteor near head. Comet's light a little fainter I think generally. Tail of a whitish, silvery light, very broad at end; a wisp projected at the end beyond the other part. Delicate halo round the head and streaming back by the sides. Position from three small stars near; at 15^h 15^m: R.A. 10^h 17^m 49^s; S. Dec. 13° 19′.

October 23, 15^h 45^m to 16^h 15^m.—Light palpably fainter, yet comet is still a superb object, head being as bright as a 1st magnitude star. Nucleus rather better defined than before. It looks like a line of light, the same being inclined at an angle to the axis of the comet. There were a star and a double star a little way from the head, forming a beautiful sight. A faint telescopic star of about 9th magnitude close to nucleus n. f. Traces of dark streak down the tail. Position at 16^h: R.A. 10^h 7^m 28^s; S. Dec. 16° 44′; length of tail 18°.

November 2, 13^h 30^m.—Comet still well seen, although very much fainter; moreover, it was dimmed by an old moon not very far off. Position at 14^h 25^m: R.A. 9^h 52^m 57^s; S. Dec. 20° 9′; length of tail, 19° 30′; breadth at end about $3\frac{1}{2}^\circ$. It extended to a star No. 60 of *Hydra* (in *Uranometria Argentina*).

November 9, 12^h 30^m.—Perhaps faint traces of a dark streak. Tail wider; two stars, 141 and 160 in *Hydra*, neatly enclosed

April 1883.

the Great Comet (b) 1882.

325

it; *i.e.* were lying one on each edge of the tail. Head made a pretty combination with two stars, 174 and 175 *Hydræ*. Nucleus as seen in telescope a dim woolly ball, no bright line as before. Position at 13^h 7^m: R.A. 9^h 40^m 53^s; S. Dec. 22° 44'; length of tail, 20°; breadth at end, 3½°.

November 12.—Light very delicately graduated from head to tail. Head is now about equal to a 5th magnitude star in brightness. The head reminded me of the bright nebula near the Nubecula Minor. Position at 13^h 22^m: R.A. 9^h 34^m 47^s; S. Dec. 23° 45'; length of tail, 19°; breadth at end about 5°.

November 20, 14^h 30^m to 17^h 40^m.—Comet generally brighter, I think, than when last seen, close to a 5th magnitude star, to which it was superior in brightness. Observations very much hindered by clouds. I compared its place with θ *Pyxis*. Position at 15^h 23^m: R.A. 9^h 16^m 54^s; S. Dec. 26° 0'.

November 30, 15^h.—Comet almost in the zenith. Light much obscured by moonlight, yet there was a long tail visible, and head was as bright as a 5th magnitude star. In telescope head was woolly, and tail barely discernible. Comparing it with 42 *Pyxis* I got position at 15^h 21^m: R.A. 8^h 50^m 8^s; S. Dec. 28° 42'; length of tail, 15°; breadth at end, 4½°.

December 8, 11^h.—Very much fainter. Head looks like a diffused nebula in telescope, with no sign of nucleus. Tail faint, but wide; traced to about R.A. 8^h 0^m; S. Dec. 20°; length 8°. No star near for comparison. I estimate position roughly at 11^h 15^m: R.A. 8^h 28^m; S. Dec. 29° 30'.

December 10, 10^h 15^m.—Very clear sky. Tail straight, and extending for some 12°. Position roughly estimated at 10^h 15^m: R.A. 8^h 22^m; S. Dec. 30° 21'.

December 15, 14^h 30^m.—Comet near the zenith. At times it was very clear during observations, and the tail could still be seen of very considerable length and breadth. Position: R.A. 8^h 4^m; S. Dec. 30° 40'; length of tail about 15°; width at end 5°. Tail faded away very gradually, so that it is difficult to say exactly where it terminated. It was directed towards a point: R.A. 7^h 40^m; S. Dec. 20° 0'.

December 22, 12^h 30^m.—Comet very dim owing to bright moonlight. No tail could be seen. The following position was roughly estimated: R.A. 7^h 37^m; S. Dec. 30° 0'.